

**REMARKS**

Claims 1-12 are pending in the application. Claims 1-6 and 12 have been rejected under 35 U.S.C. § 102(e), and claims 7-11 have been rejected under 35 U.S.C. § 103(a).

**Preliminary Matters**

As a preliminary matter, Applicant has amended the Abstract to make minor editorial changes.

In addition, Applicant has amended the specification in accordance with the Examiner's suggestion. Applicant submits that such amendment overcomes the objection.

**Rejections under 35 U.S.C. § 102(e)**

The Examiner has rejected claims 1-6 and 12 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,332,844 to Hayama et al. ("Hayama").

**A. Claim 1**

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites that a spherical inner surface of the outer race or each of the track grooves in the outer race, or both, are defined by a post-hardening cut surface.

The Examiner maintains that Hayama discloses such a surface in column 7, line 64-column 8, line 3. However, the cited portion solely discloses hot working, sub-hot working and cold forging. Applicant submits that a post-hardening cut surface is completely different from such methods, and is not disclosed in Hayama. "Hardening" is a surface treatment, for example, an induction hardening as mentioned in the Specification on page 14, lines 8-9. The hot

working, sub-hot working and cold forging disclosed in Hayama (col. 7, line 64-col. 8, line 3) forms a whole shape or form of a material, rather than a surface processing, as required by claim 1.

In addition, even assuming *arguendo* that Hayama does disclose forming a post-hardening cut surface, Applicant submits that the reference still fails to teach that portions of outer race 1 are defined by such a surface. As disclosed in the cited portion, Hayama only teaches that inner race 2 is formed by such methods (col. 7, lines 64-67).

Accordingly, since Hayama fails to teach or disclose a post hardening cut surface as claimed, Applicant submits that claim 1 is patentable over the cited reference.

#### **B. Claim 2**

Since claim 2 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

#### **C. Claim 3**

Applicant submits that claim 3 is patentable over the cited reference. For example, claim 3 recites that inner surfaces of the pockets are defined by a post-hardening cut surface. Even by assuming *arguendo* that the disclosure in col. 7, line 64-col. 8, line 3 of Hayama discloses a post-hardening cut surface, the reference still fails to suggest that pockets 4c are defined by such a surface. Therefore, since Hayama fails to teach or disclose every feature recited in claim 3, Applicant submits that such claim is patentable.

In addition, since claim 3 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

**D. Claims 4, 5 and 6**

Since claims 4, 5 and 6 are dependent, either directly or indirectly, upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

**E. Claim 12**

Applicant submits that claim 12 is patentable over the cited reference. For example, claim 12 recites that each of the track grooves in the outer race have a transverse sectional shape that is oval.

The Examiner maintains that such a feature is disclosed in Figure 4B of the cited reference. However, although Figure 4B appears to suggest such a shape, the specification of Hayama fails to teach or disclose forming a transverse sectional shape of track grooves 1b as an oval. As noted in MPEP § 2125, “[w]hen the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value.” *See Hockerson-Halberstadt, Inc. v. Avia Group Int’l*, 222 F.3d 951, 956 (Fed. Cir. 2000). Accordingly, Applicant submits that Fig. 4b cannot be used to assert that Hayama discloses the formation of track grooves 1b as an oval, since the cited reference is silent as to any such shape and does not disclose or suggest that the drawings are drawn to scale.

In addition, since claim 12 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

Rejections under 35 U.S.C. § 103(a)

A. The Examiner has rejected claims 7-9 under 35 U.S.C. § 103(a) as being unpatentable over Hayama in view of U.S. Patent No. 6,367,981 to Yamamoto et al. ("Yamamoto").

**1. Claims 7 and 8**

In regards to claims 7 and 8, the Examiner acknowledges that Hayama fails to disclose that a surface of retainer 4 has a surface treatment layer, wherein the surface treatment layer is a film of a solid lubricant, but contends that Yamamoto does. However, since claims 7 and 8 are dependent upon claim 1, and Yamamoto fails to cure the deficient teachings of Hayama, Applicant submits that claims 7 and 8 are patentable over the combination of the cited references.

**2. Claim 9**

Turning to claim 9, the Examiner acknowledges that Hayama fails to disclose that the surface treatment layer is a low temperature sulfurized layer, but contends that Yamamoto does. However, Applicant respectfully disagrees with the Examiner and submits that claim 9 is patentable over the cited references. In particular, Yamamoto fails to teach or disclose the use of a low temperature sulfurized layer as a surface treatment layer. If the Examiner still maintains

the rejection, Applicant respectfully requests the Examiner to indicate where Yamamoto discloses such a layer in the next Action.

In addition, since claim 9 is indirectly dependent upon claim 1, Applicant submits that claim 9 is patentable at least by virtue of its dependency.

**B.** The Examiner has rejected claims 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Hayama in view of U.S. Patent No. 5,580,313 to Jacob et al. ("Jacob").

**1. Claim 10**

Applicant submits that claim 10 is patentable over the cited references. For example, claim 10 recites that each of the track grooves in each of the inner and outer races and the corresponding ball cooperate to define radial gaps being of a size not greater than 0.05mm. The Examiner acknowledges that Hayama fails to disclose the above features, but contends that Jacob does.

In particular, the Examiner maintains that Jacob discloses the above features in column 4, lines 56-67. However, the cited portion of Jacob just discloses the selection of a "suitable" diameter for balls 9, and to "set the play" between the inner part 6, guiding element 22, cage 11 and outer part 1, to obtain accurate functioning of the joint (Fig. 1). No radial gap measurement is disclosed, let alone a radial gap being of a size no greater than 0.05mm, as required by claim 10.

Further, "when the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference." *In*

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*re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)(citing *In re Yates*, 663 F.2d 1054, 211 USPQ 1149, 1151 (CCPA 1981)). Since the reference makes no disclosure of the particular claimed dimension, Applicant submits that no such suggestion appears in Jacob.

Accordingly, Applicant submits that claim 10 is patentable over the combination of the cited references.

In addition, since claim 10 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

## **2. Claim 11**

Since claim 11 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

### Newly Added Claims

Applicant has added claims 13-16 to provide more varied protection for the present invention. Applicant submits that such claims contain features which are not taught or disclosed in the cited references.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Allison M. Bowles  
Registration No. 48,294

SUGHRUE MION, PLLC  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

Date: May 12, 2003

**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

**The specification is changed as follows:**

**The paragraph beginning on page 11 and ending on page 12 is amended as follows:**

As shown in Fig. 1, the outer race 1 has an inlet mouth 12 and a rear opening 14 opposite to the inlet mouth 12 and adjacent the propeller shaft 16, the rear opening 14 having a diameter smaller than that of the inlet mouth 12, or an inner diameter of the outer race 1 at a front end portion. The outer race 1 also includes a fitting flange 13, which is formed therewith so as to protrude radially outwardly therefrom and positioned adjacent the inlet mouth 12, and a cylindrical mount 15 protruding axially outwardly from the rear opening 14. The propeller shaft 16 has a free end inserted through the rear opening 14 into the interior of the inner race 2 so as to be engaged with the inner peripheral surface 2a of the inner race 2. The inner peripheral surface 2a of the inner race 2 and an outer surface of the free end of the propeller shaft 16 are both serrated so that the inner race 2 and the propeller shaft 16 are coupled together for rotation together therewith. A tubular boot 17 having first and second ends opposite to each other is mounted on the propeller shaft 16 with the first end fixed thereto by means of a fastening ring (not shown) while the second end of the tubular boot 17 is positioned outside the cylindrical mount 15 and fixed to the cylindrical mount 15 by means of a fastening ring (also not shown). On the other hand, the inlet mouth 12 of the outer race 1 is closed by a round cover plate 18 having its peripheral edges engaged to the inner peripheral surface of the outer race 1. The constant velocity universal joint of the type shown in the illustrated embodiment wherein the



propeller shaft 16 is inserted into the outer race 1 is generally referred to in the art as a [Zepper type or a Tzeppel]Rzeppa type constant velocity universal joint.

**IN THE CLAIMS:**

**Claims 13-16 are added as new claims.**

**IN THE ABSTRACT OF DISCLOSURE:**

**The abstract is changed as follows:**

A spherical inner surface [5] of the outer race [1] and track grooves in the outer race [1] are each defined by a post-hardening cut surface. A spherical outer surface [6] of the inner race [2] and track grooves in the inner race [2] are also each defined by a post-hardening cut surface. A retainer [4] has a spherical outer surface [10], a spherical inner surface [11] and inner surfaces of the pockets [9], all of which are defined by a post-hardening cut surface. Respective surfaces of the retainer [4], the outer race [1] and the inner race [2] which contact with each other are formed with a surface treatment layer for reducing a frictional resistance.